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PATENT COOPERATION TREATY

	From the INTERNATIONAL BUREAU			
PCT	То:			
NOTIFICATION OF ELECTION (PCT Rule 61.2)	Assistant Commissioner for Patents United States Patent and Trademark Office Box PCT Washington, D.C.20231 ÉTATS-UNIS D'AMÉRIQUE			
Date of mailing (day/month/year) 02 March 2000 (02.03.00)	in its capacity as elected Office			
International application No.	Applicant's or agent's file reference			
PCT/US99/12906	PF-0531 PCT			
International filing date (day/month/year) 08 June 1999 (08.06.99)	Priority date (day/month/year) 08 June 1998 (08.06.98)			
Applicant				
BANDMAN, Olga et al				
1. The designated Office is hereby notified of its election made: X In the demand filed with the International Preliminary Examining Authority on: 21 December 1999 (21.12.99) In a notice effecting later election filed with the International Bureau on: 2. The election X was was not was				
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer F. Baechler Telephone No.: (41-22) 338.83.38			

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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶:
C12N 15/12, 5/10, 1/21, C07K 14/47, 16/18, C12Q 1/68, A61K 38/17

A3

(11) International Publication Number:

WO 99/64593

(43) International Publication Date:

16 December 1999 (16.12.99)

(21) International Application Number:

PCT/US99/12906

(22) International Filing Date:

8 June 1999 (08.06.99)

(30) Priority Data:

60/088,695

8 June 1998 (08,06,98)

US

(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application

US Filed on 60/088,695 (CIP) 8 June 1998 (08.06.98)

(71) Applicant (for all designated States except US): INCYTE PHARMACEUTICALS, INC. [US/US]; 3174 Porter Drive, Palo Alto, CA 94304 (US).

(72) Inventors; and

(75) Inventors, Applicants (for US only): BANDMAN, Olga [US/US]; 366 Anna Avenue, Mountain View, CA 94043 (US). LAL, Preeti [IN/US]; 2382 Lass Drive, Santa Clara, CA 95054 (US). TANG, Y., Tom [CN/US]; 4230 Ranwick Court, San Jose, CA 95118 (US). CORLEY, Neil, C. [US/US]; 1240 Dale Avenue #30, Mountain View, CA 94040 (US). GUEGLER, Karl, J. [CH/US]; 1048 Oakland Avenue, Menlo Park, CA 94025 (US). BAUGHN, Mariah,

R. [US/US]; 14244 Santiago Road, San Leandro, CA 94577 (US). PATTERSON, Chandra [US/US]; 490 Sherwood Way #1, Menlo Park, CA 94025 (US).

(74) Agents: BILLINGS, Lucy, J. et al.; Incyte Pharmaceuticals, Inc., 3174 Porter Drive, Palo Alto, CA 94304 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

(88) Date of publication of the international search report: 30 March 2000 (30.03.00)

(54) Title: CELL CYCLE REGULATION PROTEINS

(57) Abstract

The invention provides a human cell cycle regulation proteins (CECRP) and polynucleotides which identify and encode CECRP. The invention also provides expression vectors, host cells, antibodies, agonists, and antagonists. The invention also provides methods for diagnosing, treating or preventing disorders associated with expression of CECRP.

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itional Application No PCT/US 99/12906

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 C12N15/12 C12N5/10 C12N1/21 C07K14/47 C07K16/18 C12Q1/68 A61K38/17 According to International Patent Classification (IPC) or to both national classification and IPC **8. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) C12N C07K C12Q A61K IPC 6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. DATABASE EMEST20 [Online] X 1-12 E.M.B.L. Databases Accession Number: AA280100, 3 April 1997 (1997-04-03) NCI-CGAP: "Homo sapiens cDNA clone IMAGE:705030 5' similar to TR:G487787 G487787 ZINC FINGER PROTEIN ZNF140. XP002118250 98.9% identity in 531bp overlap with SeqIdNo.6 abstract -/--Further documents are listed in the continuation of box C. Х Х Patent family members are listed in annex. Special categories of cited documents: T later document published after the international filing date or priority date and not in conflict with the application but 'A' document defining the general state of the art which is not cited to understand the principle or theory underlying the considered to be of particular relevance invention "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to filing date "L" document which may throw doubts on priority claim(s) or involve an inventive step when the document is taken alone which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-*O* document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled in the art. "P" document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 13. 01. 00 8 October 1999 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentiaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, Lonnoy, 0 Fax: (+31-70) 340-3016

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PCT/US 99/12906

Category °	Ation) DOCUMENTS CONSIDERED TO BE RELEVANT	I Deliverado de la companya de la co
ategory *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
<	DATABASE EMEST27 [Online] E.M.B.L. Databases Accession Number: AA307127, 18 April 1997 (1997-04-18) ADAMS M ET AL: "Homo sapiens cDNA 5' end similar to similar to zinc finger protein family" XP002118251 98.9% identity in 455bp overlap with SeqIdNo.6 abstract	1-12
X	DATABASE EMSET 25 [Online] E.M.B.L. databases Accession Number: AA148046, 15 December 1996 (1996-12-15) HILLIER L ET AL: "Homo sapiens cDNA clone 590442 5' similar to TR:G577019 G577019 PROCKR2" XP002118252 97.0% identity in 603bp overlap with SeqIdNo.6 abstract	3-9
A	TURNER C ET AL: "Blimp-1, a novel zinc finger-containing protein that can drive the maturation of B lymphocytes into immunoglobulin-secreting cells" CELL, vol. 77, no. 2, 22 April 1997 (1997-04-22), pages 297-306, XP002118249 cited in the application	
A	WO 95 28483 A (COLD SPRING HARBOR LAB) 26 October 1995 (1995-10-26)	

2

emational application No.

INTERNATIONAL SEARCH REPORT

PCT/US 99/12906

Box I Observations where certain laims were found unsearchabl (Continuation of Item 1 of Itrst shet)
This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. X Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely: Remark: Although claims 17-21, as far as in vivo methods are concerned, are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically: See FURTHER INFORMATION sheet
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
B x II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
see additional sheet
As all required additional search fees were timely paid by the applicant, this International Search Report covers all
searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. X No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-23 (all partially)
Remark on Protest The additional search fees were accompanied by the applicant's protest.
No protest accompanied the payment of additional search fees.

Claims: 1-23 (all partially)

A substantially purified polypeptide comprising sequence according SeqIdNo.1 or a polypeptide at least 90% identical to SeqIdNo.1 or a part thereof; a substantially purified polynucleotide coding for the above polypeptide or comprising the sequence of SeqIdNo.6 or a variant thereof with at least 90% identity; An expression vector and a host cell comprising the above sequence and a method for producing the same; Antibodies, agonists and antagonists against the above polypeptide and a pharmaceutical composition containing the polypeptide; Methods to treat or prevent cancer or immune disorders using above polypeptide or antagonist thereof; Method for detecting polynucleotides encoding the polypeptide.

2. Claims: 1-23 (all partially)

As for subject 1, but respectively relating to SeqIdNo.2 and SeqIdNo.7

3. Claims: 1-23 (all partially)

As for subject 1, but respectively relating to SeqIdNo.3 and SeqIdNo.8

4. Claims: 1-23 (all partially)

As for subject 1, but respectively relating to SeqIdNo.4 and SeqIdNo.9

5. Claims: 1-23 (all partially)

As for subject 1, but respectively relating to SeqIdNo.5 and SeqIdNo.10 $\,$

Continuation of Box I.2

Claims 15, 16, 18, 20, respectively relating to an agonist/antagonist of the polypeptide of claim 1, and to therapeutic uses of said antagonist, could not be searched completely as the corresponding subject-matters were insufficiently disclosed.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

Information on patent family members

ational Application No PCT/US 99/12906

Patent document cited in search report		Publication date		atent family nember(s)	Publication date
WO 9528483	Α	26-10-1995	US US AU CA EP JP US US	5889169 A 5962316 A 703908 B 2384595 A 2186639 A 0755445 A 9512424 T 5919997 A 5824315 A 5968821 A	30-03-1999 05-10-1999 01-04-1999 10-11-1995 15-10-1995 29-01-1997 16-12-1999 06-07-1999 20-10-1998 19-10-1999

Form PCT/ISA/210 (patent family annex) (July 1992)

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PF-0531 PCT	FOR FURTHER see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.				
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)			
PCT/US 99/12906	08/06/1999	08/06/1998			
Applicant					
INCYTE PHARMACEUTICALS, IN	VC. et al.				
This International Search Report has been according to Article 18. A copy is being tra	n prepared by this International Searching Auth Insmitted to the International Bureau.	ority and is transmitted to the applicant			
This International Search Report consists It is also accompanied by	of a total of <u>6</u> sheets. a copy of each prior art document cited in this i	report.			
Basis of the report					
	nternational search was carried out on the bas ess otherwise indicated under this item.	is of the international application in the			
the international search w Authority (Rule 23.1(b)).	as carried out on the basis of a translation of th	e international application furnished to this			
b. With regard to any nucleotide an was carried out on the basis of the		ernational application, the international search			
·	nal application in written form.				
filed together with the inte	rnational application in computer readable form	ı.			
I <u>—</u>	this Authority in written form.				
	this Authority in computer readble form.				
the statement that the sub- international application a	sequently furnished written sequence listing do s filed has been furnished.	es not go beyond the disclosure in the			
the statement that the info furnished	rmation recorded in computer readable form is	identical to the written sequence listing has been			
2. X Certain claims were four	nd unsearchable (See Box I).				
3. X Unity of invention is lack	king (see Box II).				
4. With regard to the title,					
X the text is approved as su	bmitted by the applicant.				
the text has been establish	ned by this Authority to read as follows:				
5 With report to the abstract					
5. With regard to the abstract, X the text is approved as submitted by the applicant.					
the text is approved as submitted by the applicant. the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.					
6. The figure of the drawings to be publi	shed with the abstract is Figure No.	-			
as suggested by the applic		None of the figures.			
because the applicant faile	•				
because this figure better	characterizes the invention.				

nternational application No.

PCT/US 99/12906

Bx	1	Observations where certain claims were f und unsearchabl (Continuation fitem 1 ffirst she t)
This li	nte	rnational Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. 🛚		Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely: Remark: Although claims 17-21, as far as in vivo methods are concerned, are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. <u>X</u>		Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically: see FURTHER INFORMATION sheet
3.		Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
B x!	11	Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
		rnational Searching Authority found multiple inventions in this international application, as follows:
S	ee	e additional sheet
1.]	As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2.		As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.		As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. X	_	No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-23 (all partially)
Rema	rk (The additional search fees were accompanied by the applicant's protest. No protest accompanied the payment of additional search fees.

1. Claims: 1-23 (all partially)

A substantially purified polypeptide comprising sequence according SeqIdNo.1 or a polypeptide at least 90% identical to SeqIdNo.1 or a part thereof; a substantially purified polynucleotide coding for the above polypeptide or comprising the sequence of SeqIdNo.6 or a variant thereof with at least 90% identity; An expression vector and a host cell comprising the above sequence and a method for producing the same; Antibodies, agonists and antagonists against the above polypeptide and a pharmaceutical composition containing the polypeptide; Methods to treat or prevent cancer or immune disorders using above polypeptide or antagonist thereof; Method for detecting polynucleotides encoding the polypeptide.

2. Claims: 1-23 (all partially)

As for subject 1, but respectively relating to SeqIdNo.2 and SeqIdNo.7

Claims: 1-23 (all partially)

As for subject 1, but respectively relating to SeqIdNo.3 and SeqIdNo.8

4. Claims: 1-23 (all partially)

As for subject 1, but respectively relating to SeqIdNo.4 and SeqIdNo.9

5. Claims: 1-23 (all partially)

As for subject 1, but respectively relating to SeqIdNo.5 and SeqIdNo.10

Continuation of Box I.2

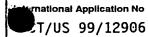
Claims 15, 16, 18, 20, respectively relating to an agonist/antagonist of the polypeptide of claim 1, and to therapeutic uses of said antagonist, could not be searched completely as the corresponding subject-matters were insufficiently disclosed.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

T/US 99/12906

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12N15/12 C12N5/10 C07K14/47 C12N1/21 C07K16/18 C12Q1/68 A61K38/17 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 6 C12N C07K C120 A61K Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Category ' Relevant to claim No. 1-12 X DATABASE EMEST20 [Online] E.M.B.L. Databases Accession Number: AA280100, 3 April 1997 (1997-04-03) NCI-CGAP: "Homo sapiens cDNA clone IMAGE:705030 5' similar to TR:G487787 G487787 ZINC FINGER PROTEIN ZNF140." XP002118250 98.9% identity in 531bp overlap with SeqIdNo.6 abstract Further documents are listed in the continuation of box C. Patent family members are listed in annex. Х Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to filing date "L" document which may throw doubts on priority claim(s) or involve an inventive step when the document is taken alone which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled in the art. other means "P" document published prior to the international filing date but later than the priority date claimed *&* document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 13. 01. 00 8 October 1999 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 Lonnoy, 0

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		21/03 99/12900		
(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	DATABASE EMEST27 [Online] E.M.B.L. Databases Accession Number: AA307127, 18 April 1997 (1997-04-18) ADAMS M ET AL: "Homo sapiens cDNA 5' end similar to similar to zinc finger protein family" XP002118251 98.9% identity in 455bp overlap with SeqIdNo.6 abstract	1-12		
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A	TURNER C ET AL: "Blimp-1, a novel zinc finger-containing protein that can drive the maturation of B lymphocytes into immunoglobulin-secreting cells" CELL, vol. 77, no. 2, 22 April 1997 (1997-04-22), pages 297-306, XP002118249 cited in the application			
A	WO 95 28483 A (COLD SPRING HARBOR LAB) 26 October 1995 (1995-10-26)			

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T/US 99/12906

Patent document cited in search report		Publication date	·	atent family nember(s)	Publication date
WO 9528483	A	26-10-1995	US US AU CA EP JP US US	5889169 A 5962316 A 703908 B 2384595 A 2186639 A 0755445 A 9512424 T 5919997 A 5824315 A 5968821 A	30-03-1999 05-10-1999 01-04-1999 10-11-1995 15-10-1995 29-01-1997 16-12-1999 06-07-1999 20-10-1998 19-10-1999